

# User Manual



VHF Transceiver

**XP-100D**

UHF Transceiver

**XP-400D**

YeonHwa M Tech Co.,Ltd

Version #1 (2016-12-15)

36 Jeonpa-Ro, 44Beon-Gil, Manan-Gu, Anyang-City, Gyeongg-Do, Korea

Tel: 82-31-444-7270

## 1. XP-100D/400D Series Main Features

The XP-100D/400D Digital Radio was developed by YeonHwa M Tech Co.,Ltd to be user-friendly and compact design, to have various features and to use at the construction / industrial / commercial / public areas for the safety & convenience of users.

It provides better communication distance, audio quality and volume, duration of use through digitalization than Analog radio.

The followings are the main features of the XP-100D/400D Series Radio.

- 16 Zones and 32 Channels are selectable. (1zone = Max 32 Channels)
- Total 512 CH can be set.
- 5/1 Watt RF Power
- Short (up to 40 characters) message transmitter.(up to 10 sentences)
- Encryption mode (AES128, 196, 256)
- TX interrupt(option)
- Lone Worker mode
- Man-down function(option)
- BCL / BCLO function
- Time-Out Timer (TOT) function
- Emergency / Siren function
- Built in Flash Lamp
- Etiquette (Vibration) function
- Voice recording and playback(Recorder quantity : 63, 1 Recorder : 2minute 30second)
- Mixed channel(Analog/ Digital)
- 5 level VOX function
- 5 level S.Q function (Analog support)
- Remote Radio Stun / Kill / Revive
- 1 Watt speaker volume
- DC+7.2V Li-ion / 2,600mAH high capacity Battery

## 2. Specification

### 2.1 XP-100D

#### General

|                         |                                                                                                    |
|-------------------------|----------------------------------------------------------------------------------------------------|
| Frequency Range         | XP-100D :136 ~ 174 MHz<br>XP-400D : 400~470 MHz                                                    |
| Frequency Stability     | ±1.5ppm (-30 to +60°C)                                                                             |
| Programmable Channels   | 16 Zones / 32 Channels                                                                             |
| Channel Spacing         | 12.5KHz                                                                                            |
| Digital Vocoder         | AMBE++                                                                                             |
| Dimensions              | 103mm(H) x 52mm(W) x 32mm(D)                                                                       |
| Weight                  | 280g                                                                                               |
| Power Source            | DC +7.2V Li-ion 2,600mAH Battery                                                                   |
| Current Drain (maximum) | Receive mode, rated audio out – 420 (Audio Max)<br>Transmit mode – 1,200mA<br>Standby mode – 110mA |

#### Receiver

|                                 |                                                                               |
|---------------------------------|-------------------------------------------------------------------------------|
| Sensitivity                     | 0.22uV 12 dB SINAD                                                            |
| Squelch Sensitivity             | 0.20uV 10dB SINAD                                                             |
| Selectivity                     | 65dB (12.5KHz)                                                                |
| Spurious and Harmonic Rejection | 75dB                                                                          |
| FM Hum and Noise                | 40dB (12.5KHz)                                                                |
| Audio Output Power              | 1 Watt across an 8-ohm load                                                   |
| Audio Distortion                | Less than 3% at rated output                                                  |
| Audio Response                  | +1, -3 dB from 6dB per octave de-emphasis Characteristic<br>from 300 ~ 3000Hz |
| Input Impedance                 | 50 ohms                                                                       |

#### Transmitter

|                          |                                                                               |
|--------------------------|-------------------------------------------------------------------------------|
| RF Power Output          | 5/1 Watt                                                                      |
| Spurious and Harmonic    | 70dB                                                                          |
| FM Hum and Noise         | 40dB (12.5KHz)                                                                |
| Audio Distortion         | 3% maximum with 1KHz modulation                                               |
| Audio Frequency Response | +1, -3dB from 6dB per octave pre-emphasis Characteristic<br>from 300 ~ 3000Hz |
| Output Impedance         | 50ohms                                                                        |

### 3. Checking items in the package

- Components could be changed by buyer request.



Radio unit



Battery



1 slot charger



Antenna



Belt clip



Hand strap(option)



User manual

Figure 3-1) XP-100D/400D series main items

XB-2600 : 2,600mAH Li-ion battery pack

XC-100D : Single Slot Charger

XC-200D : Dual Slot Charger

423D-WS : 400~450MHz SMA Whip antenna

460D-WS : 440~470MHz SMA Whip antenna

### 3.1 Appearance of XP-100D/400D Series Radio

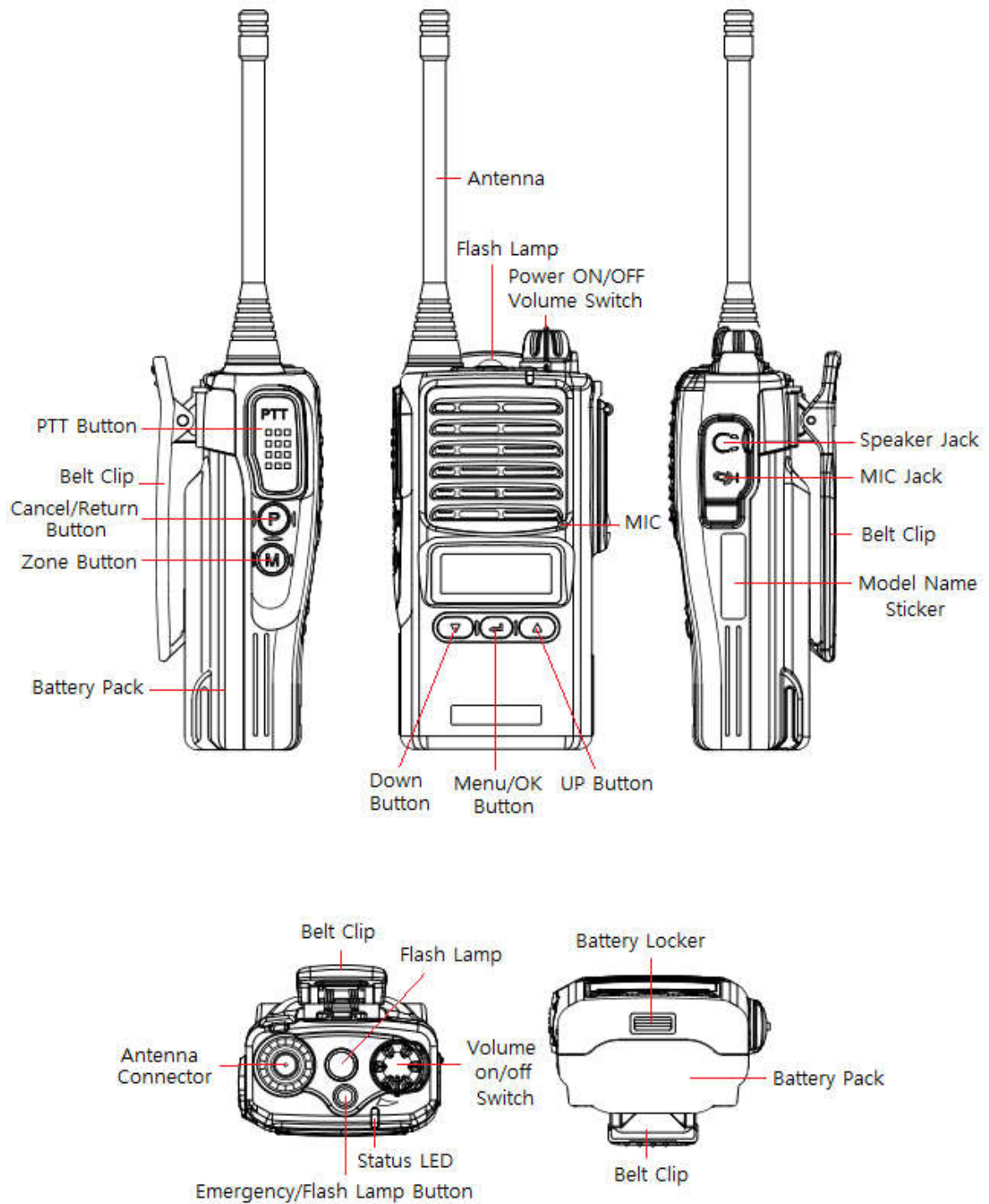


Figure 3-1) Appearance of XP-100D/400D Series Radio

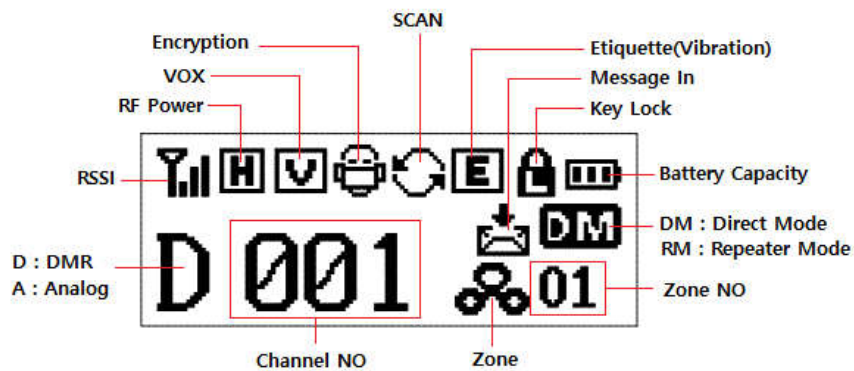


Figure 3-2) LCD Indication of XP-100D/400D Series Radio

## 4. Basic operation

Please fully read the instruction manual before use.

This manual provides important information related to radio operation.

### 4.1 Installation and Removing the Antenna

To install the antenna, insert the antenna into antenna connector and screw the antenna clockwise.

To remove the antenna, screw the antenna counter clockwise.

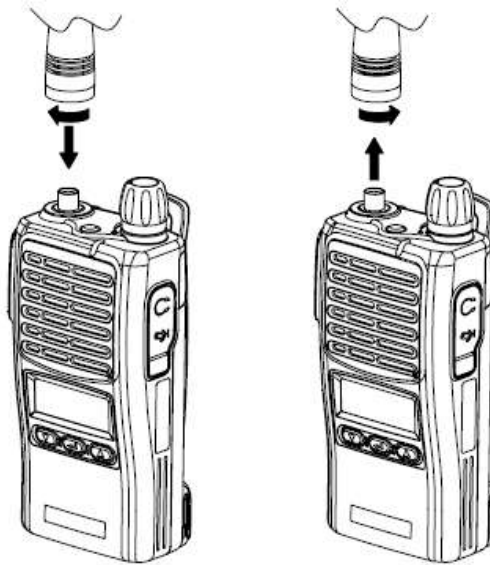


Figure 4-1) Installation and Removing the Antenna

|                                                                                                    |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>Caution</p> | <p>When installation of the antenna, giving a strong pressure to the Radio or pulling the antenna with a strong power from the Radio can make a damage on the antenna connector, which may cause the Radio to have a critical problem.</p> |
|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 4.2 Installation and Removing the Battery

### 4.2.1 Installation of the battery

To install battery, slide up the battery towards the top of the radio until battery latch is locked.

### 4.2.2 Removing the Battery

- Slide the battery latch located on the bottom of radio to the open position as shown in Figure 4-2.
- The battery is removed by pressing it against and sliding it towards the bottom of the radio

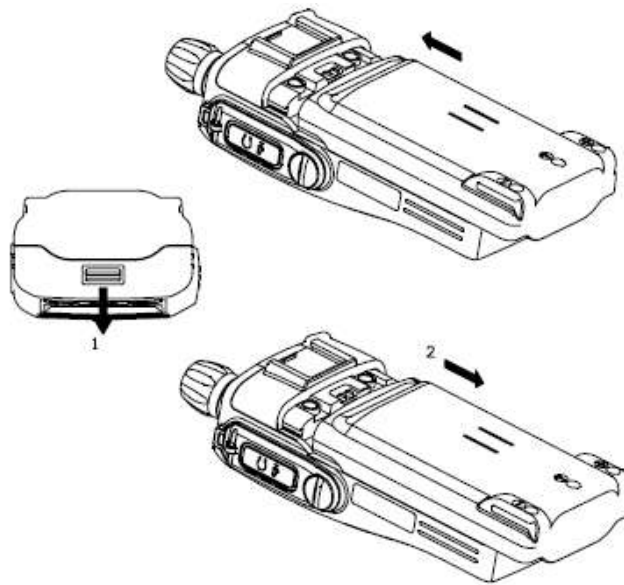


Figure 4-2) Installation and Removing the Battery

## 4.3 Installation and Removing the Belt Clip

- To attach belt clip to radio, align belt clip rails with the grooves in radio and slide the belt clip onto the mounting rails until it latches into place.
- To remove belt clip from radio, push up on tab of belt clip with flat bladed screw driver and at the same time, slide the belt clip towards the top of Radio figure 4-3).

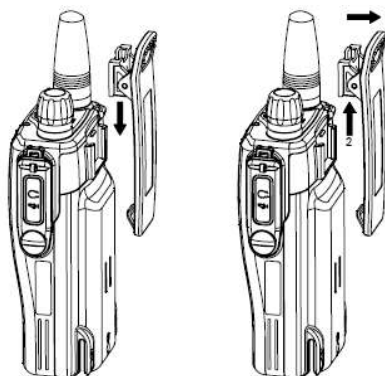


Figure 4-3) Installation and Removing the Belt Clip

## 4.4 Accessory connector

Accessory connector is used to connect external speaker MIC, and headset, etc.

Please close the cover when it is used.

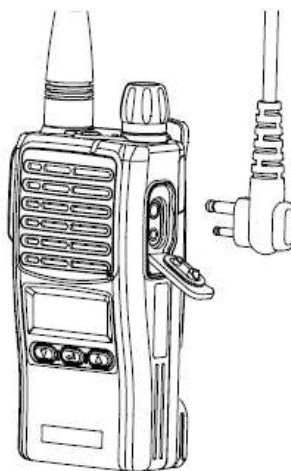


Figure 4-4) Accessory connector

## 5. Radio operation

The definition of the various buttons of the XP-100D/400D series is the same as Figure 5-1).

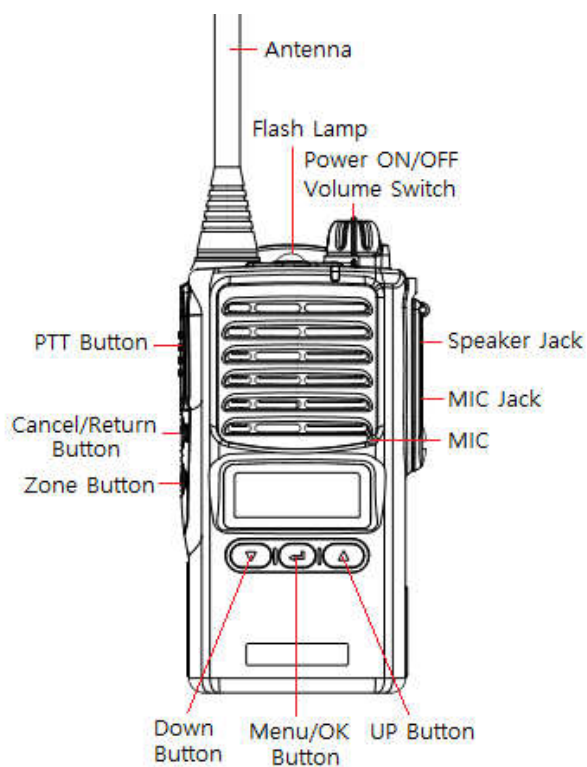


Figure 5-1) XP-100D/400D Series button definition



## 5.1 Power ON/OFF, Volume Switch

Turning the volume switch knob clockwise to power on and turning the knob counterclockwise to power off. And when set an audio volume level, please refer with the index on the side of the volume knob.

## 5.2 PTT Button

Pressing PTT button, the radio mode is transmission and releasing the button, it is receiving mode. It is recommended to talk 5~10cm away from the microphone for the best voice communication.

## 5.3 ZONE Button (Program settings)

When you press the ZONE button, the registered ZONE which registered by program is changed to a step-by-step and can be select your request channel use by UP / DOWN buttons.

## 5.4 MENU/OK Button

When you press the MENU / ENTER button, currently programmed menu is displayed and you can select a desired menu using by VOLUME + / LEFT button or VOLUME- / RIGHT button.

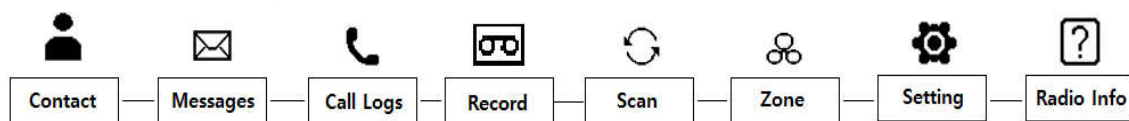


Figure 5-2) XP-100D Series Menu

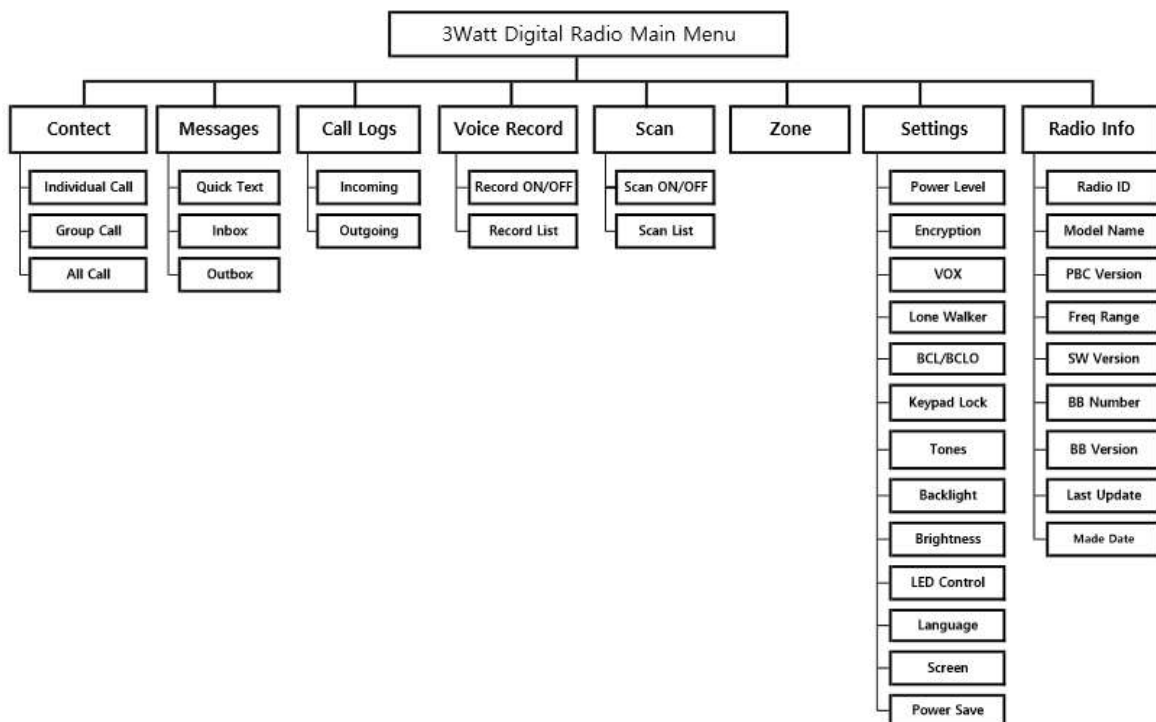


Figure 5-3) XP-100D Series Menu Tree

### **5.5 CH/Menu UP/Down Button**

"CH / MENU UP" and "CH / MENU Down" are to change channels and in the menu entry mode, it is select the UP / Down of the Menu.

### **5.6 EAR/MIC Jack**

Accessory connector is used to connect external speaker Mic, and headset, etc.  
Please close the cover when nothing is connected.

## 6. Charging the Battery

### 6.1 Safety Notes

1) The radio of XP-100D/400D series receives power from high-performance Li-ion battery (XL-260).

XL-260 Battery is safe of high performance and highly reliable, and could be charged very fast.

|                                                                                              |                                                                                                                                               |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| <br>Caution | The charging of the enclosed Radio on the other maker's charger will cause damage on the battery and also, will cause a trouble on the Radio. |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|

2) Please charge the battery before using the radio for best performance and safety.

3) When you charge the battery that is installed in the Radio, please turn off the radio first to charge the battery.

|                                                                                              |                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br>Caution | The continuous rapid discharge (for example, when making a short circuit on the '+' terminal of battery by a metal substance) may make a fatal defect and the battery can be exploded. Also, it can cause a fire. |
|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 6.2 Charging time

Low battery voltage maybe cause to reduce communication coverage and also make the performance worse. Please charge the battery in case of following:

- 1) When you think that the performance of the radio has degradation.
- 2) The red lamp on RX/TX LED blinks. (every 0.5 second), during transmission or reception.
- 3) When the battery icon is blinks
- 4) While the radio is in use, "beep" sounds.

### 6.3 How to charge

- 1) Plug the adapter of the TAD-800L charger in general power AC220V power outlet.
- 2) When charging the battery that is equipped with radio, please turn off the power of the Radio and plug the Radio in the charger.
- 3) Even if charging is completed (green lamp lights), please charge more for about 30 minutes for a full charge.

| Status            | LED indication   | Status          | LED indication     |
|-------------------|------------------|-----------------|--------------------|
| Charging          | Red LED lights   | Detecting error | Red LED is flicker |
| Complete charging | Green LED lights | Keep charging   | Green LED lights   |

## 6.4 Charger (XC-100/XC-200)

The XC-100/XC-200 charger is designed to charge only the Li-ion battery enclosed in this Radio.

Adaptor input voltage: AC85~250V



Figure 7-2) XC-100 & XC-200

### XC-100/200 Specification

| Description           | XC-100                | XC-200                |
|-----------------------|-----------------------|-----------------------|
| Input voltage         | DC+12V                | DC+12V                |
| Slot                  | 1                     | 2                     |
| Battery               | XB-2400               | XB-2400               |
| Quick charging time   | In 5 hours and half   | In 5 hours and half   |
| Operation temperature | -20°C~+40°C           | -20°C~+40°C           |
| Dimension             | 70(W)x58(D)x36(H)m/m  | 70(W)x104(D)x36(H)m/m |
| Charging current      | 870mA(Rapid charging) | 870mA(Rapid charging) |

## 7. Using the XP-100D/400D Series

### 7.1 Menu description

Press the Menu/OK button on the front to enter the menu mode. In the menu mode, there are eight of the main menus, and set and used according to the application and the environment, it can be more convenient to use.

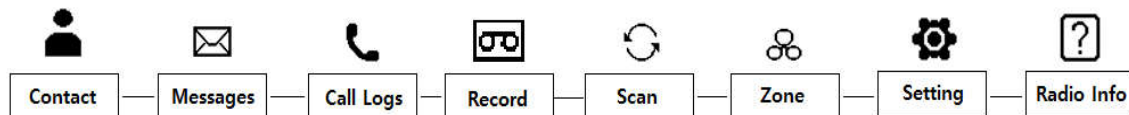


Figure 7-1) XP-100D/400D Menu

Note) If the menu is not operated for at least 25 seconds after launch, the menu mode is automatically end and it is switch to receive mode.

#### 7.1.1 Contact List

Set a contact list (set to CPS program) and will be pressing the PTT button to call. If you want to call with another registered contact, after you select a contact from the contact list and press the PTT button, it will be the call. The list of contacts in the menus can be registered / deleted using the CPS(Customer Programing Software) program.

When you enter in the contact menu, the individual, group and All Call contact list is displayed.

- ICON
  -  : Individual Contact List (individual Call , Sending individual message)
  -  : Group Contact List (Group Call , Sending group message)
  -  : All Contact List ( All call, Sending Message to terminal which has same channel and same color)

#### 7.1.2 Message

When a new message arrives, the contents will be display on LCD in receive mode.

And if you are in other mode, it will be seen in the ICON form when a new message arrives.

Message menu has a simple message, inbox, outbox, three kinds of menu.

##### 1) Simple Message

Using the CPS program can create a total of 10 messages and

One message can be edit up to 40 characters.

If you select a simple message menu you can view the registered message.

Select the message you want to send, and press the Menu/OK button, you can see the contents of the message. When you press the Menu/OK button again, the message will be sent to the registered terminal.

## 2) Inbox

It is possible to store up to 10 incoming messages.

When you choose contents stored in the list, you can see the received messages.

When the received message is more than 10, the earliest incoming message is cleared first and it is registered.

If you want to delete incoming messages, it can be deleted by selecting delete all menu.

## 3) Outbox

It is possible to store up to 10 outgoing messages.

When you choose contents stored in the list, you can see the outgoing messages.

When the outgoing message is more than 10, the earliest outgoing message is cleared first and it is registered.

If you want to delete outgoing messages, it can be deleted by selecting delete all menu

### 7.1.3 Call Log

This is the menu to save only individual call log.

Group and All call logs do not save. The message content is managed in the in/outbox messages.

#### 1) Inbox

It is possible to store up to 10 inbox record and it can see the opponent ID.

When the inbox is more than 10, the earliest inbox record is cleared first and it is registered.

If you want to delete inbox record it can be deleted by selecting delete all menu.

#### 2) Outbox

It is possible to store up to 10 outbox record and it can see the opponent ID.

When outbox is more than 10, the earliest outbox record is cleared first and it is registered

If you want to delete outbox record it can be deleted by selecting delete all menu.

### 7.1.4 Call Recording

This function is used to save the outgoing and incoming calls content. If the recorded content is not required, it can be completely deleted.

Calls list can store up to 63 and one call list will be limited to 2 minutes and 30 seconds.

If you want to use the call recording function, you can select in the settings.



Caution

. In the encrypt feature, only the contents that have been encrypted calls can hear the normal recording contents but content that has not been encrypted calls will not be able to hear.

### 7.1.5 Scan

When turning ON the scan operation, to start the scan in the order of the channel that has been set in the scan list. If there is a channel used during the scan, you will receive the contents stops at that channel.

If you want to call, you can use the settings to suit your needs by the CPS program.

#### 1) Scan ON/OFF

Select the scan settings or scan release at the scan of menu and go to receive mode..

#### 2) Scan list

Scan list can be set using the CPS program.

### 7.1.6 ZONE

ZONE can create up to 16 and it can be registered to 32 channels per ZONE.

How to specify the ZONE is to use the CPS program.

### 7.1.7 Setting

This is the menu to set various functions of the radio.

The settings are transmission power, voice encryption, VOX, Lone walker, BCL / BCLO, Keypad lock, Sounds, Backlight, Contrast, LED settings, and Language.

#### 1. Transmission power

Set the high and low of the transmission power.

#### 2. Voice Encryption

This is a feature to encrypt the incoming and outgoing voice. Voice Encryption function can be set for each channel from all of the digital channels.

The setting of voice encryption code is using the CPS program, the total number of encryption can be set from 0 to 65535.

#### 3. VOX

VOX function is transmitted by detecting a voice level without using the PTT button

VOX sensitivity level is 1 - 5 steps, you can set using the CPS program.

#### 4. Lone walker

It is function to inform others about your safety within the time set in the menu.

Setting time supports up to 1-100 minutes..

#### 5. BCL/BCLO

If the another user on the currently used channel, it is the ability to limit the transmission so as not to interfere..

BCL: If the current channel is busy, the transmission prohibition

BCLO: The ability to send regardless of the user of the current channel

## 6. Button Lock

With the exception of the minimum of buttons necessary for the user to prevent unwanted terminal operation, it is the ability to limit the operation.

When the button lock is on, all buttons are locked except the PTT button, the emergency button and power ON / OFF button.

## 7. Tones

This is a Tone setting function. The main menu is available only ON / OFF.

The detailed sound can be set using the CPS program.

## 8. LCD BACKLIGHT

This feature is LCD backlight ON / OFF.

## 9. LCD Brightness

The function is to adjust the brightness. The brightness can be set from 1 to 7 step.

## 10. LED Control.

The feature is to set the LED status display. It can be set detailed using the CPS program.

## 11. Language

The feature is to select the language for the menus.

## 12. Screen

Screen consists of ① Screen1 ② Screen2.

## 13. Power Save

Power save consists of 4 steps: ① OFF ② 1: 1 ③ 1: 2 ④ 1: 4.

### 7.1.8 Radio Information

A menu that shows the information in this device..



## 8. Precautions

### 8.1 Matters affecting the performance of the equipment.

|                                                                                   |                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Don't remove the antenna from the Radio or don't transform the antenna or don't make any change on the antenna. The strong electronic wave to be emitted from the Radio can have an effect on the performance of the Radio and can cause the Radio to have a defect. |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                   |                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Don't use the accessories (such as rechargeable battery, adaptor, external speaker microphone and earphone, etc.) from the other makers, which can cause to make a defect on battery and a malfunction or a defect on the Radio. |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                   |                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Don't disassemble or reorganize the Radio. The disassembly or reorganization will be causes of defect or malfunction and it will be impossible to make repair afterward. Also, a punishment can be made by law. |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                     |                                                                                                      |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
|  | Don't use the other frequency except for the permitted frequency in order not to be punished by law. |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|

|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <ul style="list-style-type: none"><li>• Don't give an excessive shock to the Radio.</li><li>• Don't place the Radio where the direct sunlight and/or the high temperature occurs.</li><li>• If the Radio is placed for a long time in car in summer, the hot temperature in the car may cause an explosion of battery.</li><li>• Don't make a damage to the battery by a sharp substance and/or an excessive shock.</li></ul> |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 9.2 Influences to the operations of Radio or other Equipments.

The Radio emits a strong electronic wave, which may have an effect on the operation of other equipments and also, can be influenced by the other devices.

|                                                                                     |                                                                                                                                                                                |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Please turn off the Radio before boarding on airplane.<br>When you want to use the Radio in the airplane, please follow the rules in the airplane or the instructions by crew. |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                   |                                                                                                                                                          |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>In case of the area that medical equipments are being used, please use the Radio after discussion with the equipment maker or the related doctor.</p> |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                   |                                                                                                                                                                                                                |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>Please don't use the Radio at the place where computer or the other electric/electronic devices are being used, because the strong electronic wave from the Radio can have an effect on the equipments.</p> |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 10. Safety Notes

Please make sure to read the followings for safe and effective use of the Radio.

|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <ul style="list-style-type: none"> <li>• Please keep the Radio away at least 1inch from the body.</li> <li>• If the outside surface of antenna gets stripped out, it can make a burn on the skin.</li> <li>• If you contact a conductive metal to battery terminal, a heat can be made and it may cause fire, explosion and burn. Especially, please be careful when putting the battery in a pocket or a bag.</li> <li>• When using an earphone, please don't listen to the sound at a high level. The high sound may have a bad effect on your ear.</li> <li>• After setting the volume of the Radio at a low level, please adjust the volume step by step to the level you want. A sudden high sound may give a bad damage to the ear or the heart.</li> <li>• Please don't remove or replace or charge or discharge the battery at a dangerous area, since it may cause an explosion or a fire by an electrical spark.</li> <li>• At the area where an electromagnetic force can be made, please make sure to turn off the power of the Radio.</li> </ul> |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Warranty Card

Thank you for purchasing XP-100D/400D Series.

1. This product has passed strict quality control and testing process.
2. Warranty is one year from the day the factory.
  - Failure of the product under normal operating conditions, during the warranty period may be repaired by YeonHwa M Tech Co.,Ltd or our authorized service organization free of charge.
3. For the following cases, some service fees will be charged.
  - It occurs after the warranty period has passed, performance failure, malfunction or damage.
  - When the product is damaged due to user's mishandling, abuse or improper operation.
  - When the product is damaged due to user's modification, attempted repair or otherwise access to sealed/non-user serviceable items.
  - When the product is damaged due to fires, pollution, earthquakes and any other natural or unnatural conditions, accidents, etc.
4. Product check list

|               |         |              |
|---------------|---------|--------------|
| Model No.     |         | XP-100D/400D |
| Serial No.    |         |              |
| Purchase date |         |              |
| Purchaser     | Name    |              |
|               | Address |              |

※ When you purchasing, please fill out this check list.

**YeonHwa M Tech Co.,Ltd**

36 Jeonpa-Ro, 44Beon-Gil, Manan-Gu, Anyang-City, Gyeongg-Do, Korea

Tel: 82-31-444-7270

## **Cautions**

1 The device complies with RF specifications when it is used at 25mm distance from your body.

2 Risk of explosion if battery is replaced by an incorrect type, dispose of used batteries according to the instructions.

3 Adapter shall be installed near the equipment and shall be easily accessible.

4 EUT Temperature:-10°C ~ +40°C, The charging temperature of battery is -3°C ~ +50°C,do not charging when temperature is below -3°C.

5 Adapter information:

Model name: DSA-12PFA-09 FEU 120100

Input: 100-240V~,50/60Hz 0.5A,

Output: DC12V,1A

Hereby, YeonHwa M Tech Co.,Ltd.

Declares that this Digital 5W Portable Radio is in compliance with the essential requirements and other relevant provisions of directive 2014/53/EU and without limitation of use in Europe .

The declaration of conformity may be consult at:

Manufacturer:

YeonHwa M Tech Co.,Ltd.

36, Jeonpa-ro 44beon-gil, Manan-gu, Anyang-si, Gyeonggi-do 14086

Korea

The max head SAR is 0.572 W/Kg and The max body SAR is 0.536 W/Kg which compliance with Specific Absorption Rate (SAR) for Occupational/controlled exposure (Localized 10-gram SAR for head and trunk, limit: 10.0W/kg) specified in Council Recommendation 1999/519/EC

**FCC statement**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

Hold the transmitter approximately 2 inches (25mm) from your face and speak in a normal voice, with the antenna pointed up and away.

## **RF Energy Exposure Awareness and Control Information and Operational Instructions for Occupational Use**

Notice: this radio is intended for use in occupational/controlled conditions where users have full knowledge of their exposure and can exercise control over their exposure to meet the occupational limits in FCC and International standards. This radio device is NOT authorized for general population consumer use.

### **Federal Communication Commission (FCC) Regulations**

When Digital 5W Portable Radio is used as a consequence of employment, the FCC requires users to be fully aware of and able to control their exposure to meet occupational requirement. Exposure awareness can be facilitated by the use of a product label directing users to specific user awareness information. Your Digital 5W Portable Radio has a RF Exposure Product Label. Also, your Digital 5W Portable Radio user manual includes information and operating instructions required to control your RF exposure and satisfy compliance requirements.

### **Compliance with RF Exposure Standards**

Your Digital 5W Portable Radio is designed and tested to compliance with a number of national and international standards and guidelines for human exposure to radio frequency electromagnetic energy. This radio compliance with the IEEE (FCC) and ICNIRP exposure limits for occupational/controlled RF exposure environments at operating duty factors of up to 50% talk – 50% listen and is approved for occupational use only. In terms of measuring RF energy for compliance with these exposure guidelines, your radio generates measureable RF energy only while it is transmitting (during talking), not when it is receiving (listening) or in standby mode.

Your Digital 5W Portable Radio complies with the following RF energy exposure standards and guidelines:

- United States Federal Communications Commission (FCC), Code of Federal Regulations;
- Institute of Electrical and Electronic Engineers (IEEE) C95.1
- International Commission on Non-ionizing Radiation Protection (ICNIRP)

### **RF Exposure Compliance and Control Guidelines and Operating Instructions for Two-Way Radio Operations**

To control your exposure and ensure compliance with the occupational/controlled environment exposure limits, always adhere to the following procedures;

- DO NOT remove the RF Exposure Label from the device
- User awareness instructions should accompany device when transferred to other users.

### **Operational Instructions and Training Guidelines**

To ensure optimal performance and compliance with the occupational/controlled environment RF energy exposure limits in the above standards and guidelines, users should transmit no more than 50% of the time and always adhere to the following procedures;

- In front of the face, hold the radio in a vertical position with microphone (and other parts of the radio including the antenna) at least one inch (2.5 centimeters) away from the nose or lips. Keep the radio at a proper distance is important to ensure compliance.

Note: RF exposure decrease with increasing distance from the antenna.

- Body Worn Operation; when worn the body, always place the radio in an approved clip, holder, or body harness for this product.

Using approved body-worn accessories is important because the use of non-approved accessories may results in exposure levels, which exceed the occupational/controlled environment RF exposure limits

Using only approved supplied or replacement antennas, batteries, and audio accessories, use of non-approved antennas, batteries, and wired or wireless accessories may exceed the applicable RF exposure guidelines (IEEE, ICNIRP or FCC).

## **IC statement**

### English Statement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions: 1, This device may not cause interference. 2, This device must accept any interference, including interference that may cause undesired operation of the device.

### Safety Information

This equipment complies with IC radiation exposure limits set forth for an controlled exposure environment. When the talk button is pushed, it sends out radio frequency (RF) signals. The device is authorized to operate at a duty cycle not to exceed 50%.

For body-worn operation, this radio has been tested and meets the IC RF exposure guidelines when used with manufacturer accessories supplied or designated for this product. Use of other accessories may not ensure compliance with FCC RF exposure guidelines. Use only the supplied antenna. Unauthorized antennas, modifications, or attachments could damage the transmitter and may violate FCC regulations.

Hold the transmitter approximately 2 inches (25mm) from your face and speak in a normal voice, with the antenna pointed up and away.

## **Canada Déclaration**

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement." L'information sur la sécurité de ce matériel est conforme aux limites de dose d'exposition aux rayonnements énoncés pour contrôlées l'exposition environnementale. quand le bouton de parler est poussé, il envoie des signaux radio fréquence (RF). les dispositifs sont autorisés à exploiter, à une obligation de ne pas dépasser 50%. opération portée sur le corps, la radio a été testée et respecte les directives d'exposition aux IC RF utilisée avec le fabricant d'accessoires fournis ou désignés pour ce produit. utilisation d'autres accessoires ne peut s'assurer de la conformité avec les lignes directrices sur l'exposition aux radiofréquences. utiliser uniquement l'antenne fournie. les modifications ou les antennes non autorisées, pourraient nuire à l'émetteur et peuvent violer les règlements de la IC.

l'émetteur à environ 2 inches (25 mm) de votre visage et parlez normalement, avec l'antenne pointée et loin.



**RF Energy Exposure Awareness and Control Information and Operational Instructions for  
Occupational Use**

**Informations sur la sensibilisation et le contrôle de l'exposition à l'énergie RF et instructions de  
mise en service en vue de l'utilisation professionnelle**

Notice: this radio is intended for use in occupational/controlled conditions where users have full knowledge of their exposure and can exercise control over their exposure to meet the occupational limits in ISED and International standards. This radio device is NOT authorized for general population consumer use.

Avis: cette radio est destinée à être utilisée dans des conditions professionnelles / contrôlées où les utilisateurs ont une connaissance complète de leur exposition et peuvent contrôler leur exposition afin de respecter les limites professionnelles définies par la ISED et les normes internationales. Cet appareil radio N'EST PAS autorisé pour un usage grand public.

**Innovation, Science and Economic Development Canada (ISED) Regulations**

When Digital 5W Portable Radio is used as a consequence of employment, the ISED requires users to be fully aware of and able to control their exposure to meet occupational requirement. Exposure awareness can be facilitated by the use of a product label directing users to specific user awareness information. Your Digital 5W Portable Radio has a RF Exposure Product Label. Also, your Digital 5W Portable Radio user manual includes information and operating instructions required to control your RF exposure and satisfy compliance requirements.

**Règlement sur l'innovation, les sciences et le développement économique Canada (ISDE)**

Lorsque la radio portative numérique 5W est utilisée à la suite d'un emploi, la ISED exige que les utilisateurs soient pleinement conscients de leur exposition et en mesure de contrôler leur exposition pour répondre aux exigences professionnelles. La sensibilisation à l'exposition peut être facilitée par l'utilisation d'une étiquette de produit orientant les utilisateurs vers des informations de sensibilisation spécifiques. Votre radio portative Digital 5W a une étiquette de produit d'exposition aux RF. De plus, le manuel d'utilisation de votre radio portative Digital 5W comprend les informations et les instructions d'utilisation nécessaires pour contrôler votre exposition aux RF et satisfaire aux exigences de conformité.

**Compliance with RF Exposure Standards**

Your Digital 5W Portable Radio is designed and tested to compliance with a number of national and international standards and guidelines for human exposure to radio frequency electromagnetic energy. This radio compliance with the IEEE (ISED) and ICNIRP exposure limits for occupational/controlled RF exposure environments at operating duty factors of up to 50% talk – 50% listen and is approved for occupational use only. In terms of measuring RF energy for compliance with these exposure guidelines, your radio generates measureable RF energy only while it is transmitting (during talking), not when it is receiving (listening) or in standby mode.

Your Digital 5W Portable Radio complies with the following RF energy exposure standards and guidelines:

Innovation, Science and Economic Development Canada (ISED), Code of Canada Regulations;

Institute of Electrical and Electronic Engineers (IEEE) C95.1

International Commission on Non-ionizing Radiation Protection (ICNIRP)

### **Conformité aux normes d'exposition aux RF**Votre radio portative numérique

Votre radio portative numérique 5W est conçue et testée pour être conforme à un certain nombre de normes et directives nationales et internationales relatives à l'exposition des personnes à l'énergie électromagnétique par radiofréquences. Cette radio respecte les limites d'exposition IEEE (ISED) et ICNIRP pour les environnements d'exposition professionnels / contrôlés aux fréquences de service pouvant atteindre 50% de conversation - 50% d'écoute et est approuvé pour une utilisation professionnelle uniquement. Pour ce qui est de mesurer l'énergie RF afin de respecter ces consignes d'exposition, votre radio ne génère une énergie RF mesurable qu'en cours de transmission (en conversation), pas en réception (écoute) ou en mode veille. Votre radio portative Digital 5W est conforme aux normes et directives relatives à l'exposition aux énergies RF suivantes: Innovation, Sciences et Développement économique Canada (ISDE), Règlement sur le Code du Canada; Institut des ingénieurs électriciens et électroniciens (IEEE) C95.1 Commission internationale de protection contre les radiations non ionisantes (ICNIRP)

### **RF Exposure Compliance and Control Guidelines and Operating Instructions for Two-Way Radio Operations**

To control your exposure and ensure compliance with the occupational/controlled environment exposure limits, always adhere to the following procedures;

DO NOT remove the RF Exposure Label from the device

User awareness instructions should accompany device when transferred to other users.

### **Directives de conformité et de contrôle de l'exposition aux RF et instructions d'utilisation pour les opérations radio bidirectionnelles**

Pour contrôler votre exposition et garantir le respect des limites d'exposition professionnelle / en environnement contrôlé, respectez toujours les procédures suivantes. NE PAS retirer l'étiquette d'exposition aux RF de l'appareil. Les instructions de sensibilisation des utilisateurs doivent accompagner l'appareil lors de son transfert à d'autres utilisateurs.

### **Operational Instructions and Training Guidelines**

To ensure optimal performance and compliance with the occupational/controlled environment RF energy exposure limits in the above standards and guidelines, users should transmit no more than 50% of the time and always adhere to the following procedures;

In front of the face, hold the radio in a vertical position with microphone (and other parts of the radio including the antenna) at least one inch (2.5 centimeters) away from the nose or lips. Keep the radio at a proper distance is important to ensure compliance.

Note: RF exposure decrease with increasing distance from the antenna.

Body Worn Operation; when worn the body, always place the radio in an approved clip, holder, or body harness for this product.

Using approved body-worn accessories is important because the use of non-approved accessories may result in exposure levels, which exceed the occupational/controlled environment RF exposure limits

Using only approved supplied or replacement antennas, batteries, and audio accessories, use of non-approved antennas, batteries, and wired or wireless accessories may exceed the applicable RF exposure guidelines (IEEE, ICNIRP or ISED).

#### **Instructions opérationnelles et directives de formation**

Pour garantir des performances optimales et le respect des limites d'exposition aux énergies RF définies dans les normes et directives susmentionnées, les utilisateurs ne doivent pas transmettre plus de 50% du temps et se conformer systématiquement aux procédures suivantes. En face du visage, tenez la radio en position verticale avec le microphone (et les autres éléments de la radio, y compris l'antenne) à au moins 2,5 cm du nez ou des lèvres. Maintenir la radio à une distance appropriée est important pour assurer la conformité. Remarque: l'exposition aux RF diminue avec l'augmentation de la distance par rapport à l'antenne. Opération portée sur le corps; Lorsque vous portez la carrosserie, placez toujours la radio dans un clip, un support ou un harnais approuvé pour ce produit. L'utilisation d'accessoires approuvés pour le port du corps est importante car l'utilisation d'accessoires non approuvés peut entraîner des niveaux d'exposition supérieurs aux limites d'exposition RF des environnements professionnels / contrôlés. Si vous utilisez uniquement des antennes, des batteries et des accessoires audio approuvés ou de remplacement fournis, l'utilisation d'antennes, de batteries et d'accessoires câblés ou sans fil non approuvés peut dépasser les consignes d'exposition RF applicables (IEEE, ICNIRP ou ISED). Instructions opérationnelles et directives de formation